Product Support Bulletin

Subject: Equity 386SX PLUS Questions and Answers

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GENERAL:

Q1. What microprocessor does the Equity 386SX PLUS use?

A. The Equity 386SX PLUS utilizes the Intel 80386SX-16 microprocessor. Use of this CPU gives you 386 performance and compatibility in a 16-bit based computer architecture.

Q2. At what speed does the Equity 386SX PLUS operate?

A. The Equity 386SX PLUS operates at either 16MHz or 8MHz. The speed can be set by using the following keyboard commands:

CTRL ALT + = 16 MHz (High Speed)

CTRL ALT - = 8 MHz (Low Speed)

CTRL ALT * = Automatic speed mode set (This is when the floppy disk drive is accessed.)

There is also an **ESPEED** utility that can be run at the command prompt as follows:

ESPEED /H = Switch to high speed.

ESPEED /L = Switch to low speed.

ESPEED /A = Enables Automatic speed switching.

If you run **ESPEED** with no parameters the following message is displayed:

Epson Speed control utility Version X.XX
Copyright (c) SEIKO EPSON CORP. 1990

Usage: ESPEED [/H] [/L] [/A]
/H = set **high speed (no auto speed)**
/L = set low speed (no auto speed)
/A = set auto speed

Q3. What is the Auto Speed function?

A. The Equity 386SX PLUS is capable of operating at 16MHz or 8MHz. Some copy-protected applications require the computer to run at 8MHz while accessing the program diskette. By enabling the Auto Speed function, the computer automatically switches to 8MHz when accessing the diskette drive. It then switches back to 16MHz for optimal performance. See above procedure for setting the Auto Speed function.

Q4. What BIOS does the Equity 386SX PLUS use?

A. The Equity 386SX PLUS BIOS is written specifically for the computer by Seiko-Epson Corp.

Q5. Can the Equity 386SX PLUS support an 80387 co-processor?

A. Yes, 80387SX support is available. The Equity 386SX PLUS has a socket for an optional 80387SX-16 math co-processor which operates at 16MHz. This allows extra processing power for math intensive programs like Lotus 1-2-3 or AUTOCAD.

Q6. Can the Equity 386SX PLUS use option cards that are available for the IBM PC/AT?

A. The Equity 386SX PLUS uses an AT-compatible ISA (Industry Standard Architecture) bus that enables you to install any of the various add-on products designed for IBM PC, XT or AT computer, such as: expanded memory, EGA or VGA video, internal modems and many more. lt also supports all of the option boards manufactured by Epson for the EQUITY series. There are 4 standard l/O expansion slots (one with 8-bit bus and 3 with 16-bit bus). The 16-bit slots will also accept most 8-bit compatible cards. The Equity 386SX PLUS offers flexibility in tailoring the system to your needs.

Q7. Are there any tested internal modems that can be used?

A. The Epson Link PC and the Hayes 2400 baud internal modems have been approved.

Q8. Does the Equity 386SX PLUS have a built-in mouse port?

A. Yes, it has a PS/2 compatible mouse port on the rear panel of the computer. The connector is a 6 pin mini DIN for an IRQ12 mouse or other device.

Q9. Can any other Equity keyboards be used on this machine?

A. Only the Equity le. Both the Equity le and the Equity 386SX PLUS use the PS/24-type mini-DIN connector. All other Equity keyboards use the AT-type full-size DIN connector.

Q10. What is the logical assignment of Diskette Drives?

A. When the Equity 386SX PLUS is configured with two diskette drives, it will boot from either diskette drive. If you boot the system from a diskette in the second diskette drive, normally the 6 drive, that drive becomes drive **A** and the first diskette drive, normally drive **A,** becomes drive **B.** This assignment remains in affect until the system is reset with the reset switch, turned off, or is rebooted from the drive currently designated **as** drive **B** or the **AFDD.EXE** utility on the Reference Diskette is run **(the** use of **AFDD** is described later). Therefore, the drive assignments can be controlled in two ways:

1. Boot the computer from a diskette in the drive you want assigned **as** drive A.

2. Run the **AFDD** program to reverse the current drive letter assignment.

The current logical drive assignments remain in effect when the system is rebooted from the hard disk by pressing **CTRL- ALT-DEL.** The drive assignments are lost if the system is turned off or reset with the reset button.

To use the **AFDD** utility, **type AFDD** at the command prompt and the following message appears on the screen:

Reassign FDD utility Version XXX
Copyright (c) SEIKO EPSON CORP. 1989

New Assign Present

Drive A: 1.2MB <== 1.44MB
Drive B: 1.44MB <== 1.2MB

(S)et and Reboot, Any other key to Abort ? _

if you press S, the drive letters are switched and the system reboots with the new assignments in effect. Pressing any other key aborts the operation and returns to the command prompt.

NOTE: The diskette drive types shown in AFDD message vary with the types of drives installed. If another type of diskette drive is installed (360 KB or 720 KB), the message is adjusted accordingly.

Q11. What terminal emulation boards are compatible with the 386SX PLUS?

A. The following products have been tested and approved:

3278/79 Emulation Adaptor	IBM
IBM 5250 Board	IBM
IRMA/2	DCA inc.
SDLC	IBM

Q12. Does the 386SX PLUS have a battery for the Real Time Clock?

A. The 386SX PLUS uses the Dallas DS1287 RTC which incorporates an HD146818 compatible real-time clock with an internal battery.

Q13. What video adapter comes with the 386SX PLUS?

A. The 386SX PLUS has built in VGA support that offers resolutions up to 800x600 when used with a multi-frequency monitor.

Q14. Can the serial and parallel ports be disabled?

A. Yes, the parallel and serial ports can be disabled by running the setup program on the reference diskette and choosing DISABLE.

Q15. How many internal device bays does the 386SX PLUS have, and will it support a full-height device?

A. The 386SX PLUS has 3 half-height bays to support up to 3 half-height devices. There is no capability for a full-height device.

Q16. How many wait states does the 386SX PLUS have?

A. At 16MHz, the system utilizes a “1/4 wait state” architecture for memory access and 0 wait states for ROM BIOS access on the motherboard. At 8MHz, memory and ROM BIOS access require 1 wait state; on the expansion bus, all memory or device requests are 1 wait state. lf additional waft states are required, devices on the l/O channel hold the READY signal low, thus wait states are generated until the device can respond to the CPU.

Q17. Are the wait states user selectable?

A. No, the 386SX PLUS automatically inserts them when needed after the command phase of the processor clock cycle.

Q18. How many jumpers are on the system board?

A. There are six (6) jumpers on the system board:

System Board:

Jumper 1: Password security enable/disable.
A: Disabled
B: Enabled

Jumper 2: Onboard HDD interface enable/disable.
A: Enabled
B: Disabled

Jumper 3: internal Mouse port IRQ12.
A: Assigned to on board mouse port
B: IRQ12 assigned to bus expansion slot

Jumper 4: Monitor type color/monochrome.
A: Color monitor
B: Mono monitor

Jumper 5: Auto IOCHRDY enable/disable.
A: Disabled
B: Enabled

Jumper 6: Onboard video enable/disable.
A: Enabled
B: Disabled

NOTE: J6 is not present on early production units.

HARD DISK DRIVES:

Q19. What kind of hard disk drives are available for the 386SX PLUS?

A. As a factory configuration, the 386SX PLUS is available with a 40MB, 3.5" hard disk (Conner CP-3044,27ms access time). This HDD offers a 1:1 interleave and uses an embedded controller with an IDE interface. When installing the 40MB drive, use type 17. A 100MB option kit is also available.

Q20. What hard drive controller is used in the 386SX PLUS?

A. The 386SX PLUS uses a controller embedded on the hard drive. This controller connects to a Task File Host interface (IDE) that is integrated in the system board.

Q21. Can the 386SX PLUS use other hard disk drives and controllers?

A. Yes, the Host Interface on the system board can be disabled and other third party hard drive controllers and drives can be used. The interface can be disabled by setting Jumper J2 to position A. Other embedded controller AT-type drives can also be used with the Host Interface.

Q22. What extended hard drive support is available in the ROM BIOS that comes with the Epson 386SX PLUS?

A. The Seiko-Epson BIOS will directly support hard drives that range in size from 10MB to 153MB. There is direct support for the Seagate ST-251 as well as several ESDI drives. By providing this support for 3rd party hard disk drives, the Equity SX PLUS has the capability to use most 3rd party &bit and 16-bit hard disk controllers. SCSI drives have their own controllers attached to the drive and should work correctly when attached to the bus with a host adapter.

The 386SX PLUS also has a User Definable setting that allows you to set up hard disk drives that are not supported by the 386SX PLUS Drive Type Table. in SETUP, a sub-menu lists the settings you can change for each drive: the number of cylinders (tracks), the number of read/write heads, the number of sectors, the precompensation cylinder, the landing zone (the cylinder on which you want to park the heads when moving the computer), and the total storage capacity in megabytes. This allows you to use hard drives much larger than 153MB.

FLOPPY DRIVES:

Q23. What types of floppy disk drives will work on the 386SX PLUS?

A The 386SX PLUS comes standard with either a 5.25” 1.2MB or 3.5” 1.44MB floppy disk drive. There is built-in BIOS support for industry standard 360KB and 1.44MB, 3.5” half-height floppy disk drives as well as the 720KB, 3.5” floppy drive. All four drive sizes are available from Epson.

Q24. Will the 386SX PLUS support 3 floppy disk drives?

A No, not directly. The Epson controller and ROM BIOS supports a maximum of two floppy drives.

Q25. Can the floppy disk controller be disabled?

A. No. The floppy disk controller is integrated in the system board and there are no jumpers to enable or disable it.

MEMORY:

Q26. How much memory is standard on the 386SX PLUS?

A. Currently there are two configurations - 1 MB on the single FDD units and 2MB on factory-installed HDD units.

Q27. How do I increase the memory of the 386SX PLUS?

A. You can add SIMMs (single in-line memory modules) for increased on-board memory by installing them onto the main system board in the 386SX PLUS. With added SIMMs, the total amount of on-board memory in the computer must be one of the following: 2, 4,6, 8, or 10MB (1 MB base) or 4, 6, 8, 10, 12 or 14MB (2MB base).

There are 12 SIMM sockets inside the 386SX PLUS and 256KB and 1 MB 70ns SIMM's are used to upgrade memory in 2 MB increments:

SIMM Location: 386SX PLUS 2MB Base Unit

6H	6L	5H	5L	4H	4L	3H	3L	2H	2L	1H	1L	Total Memory
						#	#	b	b	b	b	4 MB
				#	#	#	#	b	b	b	b	6 MB
		#	#	#	#	#	#	b	b	b	b	8 MB
#	#	#	#	#	#	#	#	b	b	b	b	10 MB
#	#	#	#	#	#	#	#	b	b	#	#	12 MB
#	#	#	#	#	#	#	#	#	#	#	#	14 MB

Legend:
b = Empty
#=lMbxlx9SIMM's
L = LOW Byte.
H =HIGH Byte.

** Total includes the standard 2MB of System Memory

SIMM Location: 386SX PLUS 1 FDD System

6H	6L	5HSL	4H4L	3H3L	2H2L	1H	1L	Total Memory
				*	*	*	*	2 MB
			#	#	*	*	*	4 MB
		#	#	#	#	*	*	6 MB
	#	#	#	#	#	*	*	8 MB
#	#	#	#	#	#	*	*	10 MB

Legend:
*= 256 KB SIMM
= 1 MB SIMM

Memory can also be expanded through the use of third party memory boards using an I/O slot.

Q28. What SIMMs should be used when adding memory to the 386SX PLUS?

A. Use the Epson 1MB kit (A808231) or the 2MB kit (A808101), to extend the system memory. Should you need to use third party SIMM modules we recommend the following:

Toshiba	1MBit x 9 70 nSec
Matsushita	1MBit x 9 70n Sec
CDC Enterprises	1 MBit x 9 70 nSec
Samsung	1MBit x 9 70 nSec
Acculogic	1MBit x 9 70 nSec

NOTE

The following SIMM chips do not work in the 386SX PLUS:

IBM	Panasonic
Compaq	NMBS

SOFTWARE:

Q29. What version of MS-DOS is provided with the 386SX PLUS?

A MS-DOS is optional and the customer can choose between versions 3.30 and 4.01.

Q30. Is the 386SX PLUS compatible with OS/2?

A. Yes, Epson OS/2 1.0 and IBM OS/2 1.2 have been tested on the 386SX PLUS.

Q31. Will it support Unix and/or Xenix? Which versions?

A. The Equity SX PLUS has been tested with Santa Cruz Operations Xenix 386 Rel. 2.3.2 and IBM PC Xenix Vers. 1.